# Historic Analysis and PCHA
# Frequently Asked Questions
## Compilation of Questions from Geographic Area Briefings

| NO. | FPA SUBJECT AREA | ANSWER BY | QUESTION / COMMENT  **ANSWERS** |
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| 1. | Historic Analysis | Core | Will the "new" PCHA allow for correcting the national database?  **Yes, currently only the USFS has this capability.** |
| 2. | Historic Analysis | Core | DRI "cleaned up" weather data prior to the last NFMAS exercise, will a clean up of weather data occur prior to implementation of FPA?  **Weather data should be checked for accuracy, and corrected data should be saved locally and national databases corrected.  You are responsible for your data, as of 5/27/2004 a Interagency National effort is underway to contract for quality control and assurance of existing National Fire Danger Rating Stations data.** |
| 3. | Historic Analysis | Core | Explain the concepts behind "ignitions represented by a single workload point" and how it will effect FMU designation and FPA modeling?  **Workload Points serve one purpose only, a point for which representative travel or arrival times to the Fire Management Unit from each Dispatch Location are calculated.  From a strategic standpoint it is important to keep in mind these are representative travel times to get from a Dispatch Location into the area of the Fire Management Unit not a specific point within the Fire Management Unit.**  **The system is a strategic model not tactical.  The workload point needs to represent travel distance and time, no other modeling attributes are currently used at the workload point.** |

| 4. | Historic Analysis | Core | What time frame in fire history is used? **In a practical sense, each Fire Planning Unit will use the best data they have available. We have arranged for Agricultural Research Service to review our statistical assumptions (peer review). Sensitivity analysis of the FPA prototypes should allow us to recommend the number of years of data to use for analysis.** How will episodic fire events affect modeling, i.e. big years, little years, big decades, little decades? **Episodic fire events are part of the historic record and will be represented in the fire event scenario.** |
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| 5. | Historic Analysis | Core | In calculating the probability of new and/or simultaneous events, will lightning data be factored in? **FPA-PM is using actual ignition data only, fires either happened or they did not.** Historically lightning is a major factor for Nevada in numbers of new ignitions and large fire development (due to sheer numbers of new starts overwhelming resources). Whether the lightning is wet or dry is key, but very difficult to predict. **Episodic fire events are part of the historic record and will be represented in the fire event scenario. Fuel moisture values representing wet and dry conditions will also be represented through historic frequency distributions.** |
| 6. | Historic Analysis | Core | NFDRS, RAWS don't have solar radiation – where does this come from? **Some RAWS do have pyronometers on them for measuring "total sky energy" thus solar radiation. Recommend familiarization with weather station operation. RAWS uses fuel temperature (surrogate for solar radiation) and algorithms to calculate fuel moisture values.** Weather patterns – how do you account for link between wind and RH? **Wind speed and fuel moistures are independent variables (they are not correlated). Both of these fire behavior variables will have frequency distribution prepared so they can be use to model the full range of weather variability.** |

| 7. | Historic Analysis | Core | Fire regime return interval – 20 years – what to do? **Ten years of data will be used to calculate the probability of having a single fire or multiple, competing fires for each day of the year. Fire regime and condition class are not inputs used in FPA-PM.** Will PCHA analysis be done for each FPU? **Yes, each fire planning unit will need historic analysis provided by PCHA.** Lumpers and splitters for making FMUs? **Yes there are and will be.** |
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| 8. | Historic Analysis | Core | Can other indices be used in analysis other than FIL percentile ERC for example? **FPA-PM uses Energy Release Component (ERC) fuel model G to calculate fuel moisture values. You can use PCHA or FireFamily Plus to perform analysis of weather data for other purposes. FIL equals Fire Intensity Levels, of which there are six, these are categories of flame length as calculated by the fire behavior processor and used to communicate effects upon natural and cultural resources.** |
| 9. | Historic Analysis | Core | Moving from 13 surface fuel models to 40 surface fuel models? You have got to be kidding – how will planners be able to get that close the differences to determine which one to use? **The system will be able to use a robust set of fuel types. This robust set allows the fire planner to model very specific fuel conditions if that is needed. If the current set surface fuel models are adequate, then we would recommend using them.** |
| 10. | Historic Analysis | Core | Is historical fire size used as a model input? **Historic fire size is not an input. And we not calibrating the modeled result against the historic acres burned or the success or failure of past responses.** **An output from fire simulation within PCHA is the XFT which contains the calculated final fire size based upon the process developed by the Fire Behavior Project of the Missoula Fire Sciences Labratory. Refer to the PCHA 1.2 when it becomes available.** |

| 11. | Historic Analysis | Core | Historical Fire Occurrence – The core team has suggested that we use 20 years data to define the fire occurrence frequency.  What is your advice if one FPU partner does not have 20 years data?  Will his occurrence count less (i.e., frequency divided into 20 years) or will each partner's frequency be adjusted individually based on their particular period (i.e., frequency divided by actual number of years used) before aggregating to create the FPU fire frequency?  **In a practical sense, the Fire Planning Unit will use the best data they have available.  We have arranged for Agricultural Research Service to review our statistical assumptions (peer review).  Sensitivity analysis of the FPA prototypes should allow us to recommend the number of years of data to use for analysis.** |
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| 12. | Historic Analysis | Core | Can more than one FBPS fuel model be used in a FMU?  **YES, any number of fuel types can be defined for each FMU, the total of all fuel types must equal 100% for each FMU.  Each modeled fire event is assigned a fuel type randomly drawn from the fuel type distribution of the FMU.** |
| 13. | Historic Analysis | Core | How far back can you go in fire history data to go into PCHA?  10 years, 15 years, 20 years, other.  **As far back as you have records for.  We have arranged for Agricultural Research Service to review our statistical assumptions (peer review).  Sensitivity analysis of the FPA prototypes should allow us to recommend the number of years of data to use for analysis.  Currently we are recommending 20 years of data if it is available.** |
| 14. | Historic Analysis | Core | How are the canopy attributes going to be calculated across the landscape or in an FMU?  Where stand inventory data currently exist calculating canopy attributes is not a problem.  However, stand inventory data exists primarily on timber suitable lands and currently does not cover all timbered stands on a landscape or in a FMU.  **The options are:**<br>• **FARSITE landscape files,**<br>• **Expert knowledge from local sources,**<br>• **Fire planner estimates.**<br>**Expect additional process and guidance.** |

| 15. | Historic Analysis | Core | Will fuel data, i.e., fuel models, crown base height, and crown bulk density, need to be spatially explicit? **The fuel type data will not be spatially explicit, it is just a distribution for the FMU.** If so, at what resolution and accuracy and when? |
| | | | Should FMUs be broken out by different fuel models/crown characteristics?<br>**Fuel types should not be the primary criteria used to develop FMUs rather FMU developed used use Land Management, Resource Management and/or Fire Management Objectives.** |
| 16. | Historic Analysis | Core | Will there be a common access method for fire occurrence data? Currently KCFAST vs. SACS.<br>**Each agency and bureau has its specific access method for extracting fire report data from their specific database. PCHA does not directly access agency and/or bureau fire occurrence databases but it will import fire report data formatted to the .raw specifications.**<br>**PCHA 1.2 will provide the import file format for each of the five federal agencies as well as the States of Oregon and Idaho work is on going to obtain the file format from U.S. Fire Administrations, NFIRS Wildland module reports.**<br>How can current and future FRCC (flammability) and climatic cycles (long term drought) be accounted for in anything but a very recent (5-year) "analysis period"?<br>**Fire Regime & Condition Class (FFRC) are currently viewed as part of Phase II Fuels Management Module. The increased or decreased flammability you mention can be represented through the robust set of fuel types available for modeling.** |
| 17. | Historic Analysis | Core | If historical fire occurrence will drive PCHA, won't an interagency fire report be needed?<br>**PCHA 1.2 will allow the import of several different fire occurrence datasets. PCHA is not "driven" to any conclusion, it is simply the tool used for historic analysis of fire and weather input data.** |

| 18. | Historic Analysis | Core | If data is cleaned up locally how do we get data to national database? **PCHA 1.2 will be designed to export corrected data for the U.S. Forest Service, at this time all other agencies and bureaus must reenter the data into their respective fire reporting systems. Contact your agency and/or bureau fire report data administer for your agencies process.** <br> It has to happen because other levels of organization go to the national database and produce maps and things? Then decisions are made. |
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| 19. | Historic Analysis | Core | How do "false alarms" fit into the fire occurrence picture? We roll on these, incur cost, but ultimately have no fire. **False alarms and natural outs will not be part of the fire occurrence data used in FPA-PM. We would contend that no preparedness budget is needed for these fire types.** |
| 20. | Historic Analysis | Core | What about WUI fires that are not big but take up so many resources? **This strategic model will use National Wildfire Coordinating Fire Resource Production Rates per Fire Behavior Prediction System, they do not reflect structure protection but focus on stopping the spread of the wildland fire. You have asked a tactical question. FPA-PM is a strategic model.** |
| 21. | Historic Analysis | Core | With triple fuel models – all production rates will change/be created new – who/when? **Fire behavior simulation will use Fuel Types (surface fuel model and canopy fuel characteristics). Fire resource production rates (containment) will be based only on surface fuel model. When the expanded set of surface fuel models become available the San Dimas lab will provide appropriate production rates. The fire behavior and thus fire resource production rates are based upon only one surface fuel model per fire event not a combination.** |

| 22. | Historic Analysis | | Fuel models are time-sensitive (i.e., insect infestation, fuel growth) – how does FPA account for changes in suppression strategy driven by predictable fuel changes over time, including HFRA activities? **As fuel conditions change this should be reflected in adjusting fuel type percentages and reanalyzing the FPU.** Historic fires may have been driven by historic management practices and may not be reflective of the future, how does FPA account for this? **Modeling has its foundation in historic analysis. Using or predicting future conditions would be difficult to support with a scientifically credible process that would withstand peer review.** How does FPA account for stochastic events? I.e., weather, large fires, insect/disease, changes in human access/development? **FPA-PM is using a sudeo- stochastic process to create the Fire Scenario, thus accounting for the "randomness" of when fires occur, the same process is used for weather data to calculate fuel moistures and wind speeds.** Weather ignitions, fuels are "averages" (i.e., historic data) – probability distributions are inherently inaccurate on an annual basis – how does FPA account for this? **We are not using average data values. We believe that probability distributions are the best way to represent the variability that we actually observe, especially when coupled with a random draw. We are recommending using as large a dataset as is available to the FPU, hopefully 20 years. The full dataset is used to develop the fire scenario which represents a "fire season", single year subset of data for modeling.** <br><br> Probabilities are inherently multiplicative in mathematical models – is this accounted for/displayed by FPA? **We look forward to your written critique of the FPA system.** |
| 23. | Historic Analysis | Core | FPA calculates fire spread and intensity – does it stop going direct flanking the fire when intensity becomes too high for that? **FPA-PM is a strategic model, operational limits and guidance are not enforced by the system at this time. Guidance from Fire Behavior Prediction System Nomagrams could be implemented to indicate when hand tools alone are no longer effective.** |

| 24. | Historic Analysis | Core | Historic data is only salvageable for predicting the future if the future conditions is similar to the past. The SW is entering into a period of extended drought – data from the 1980s may not represent 2000 +. Are there opportunities to use "best guess" estimates of future fuel, and Wx conditions to model likely future fire behavior? **We are committed to using historic data within our modeling efforts. We are not aware of a forecasting method to provide future events that would be based on accepted science and pass peer review, however we do continue to explore the best up to date science available.** |
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| 25. | Historic Analysis | Core | Where is the list of what the statistical variables mean? Statistics don't lie, right? How often will we be allowed to refine data? **Historic analysis that is performed with PCHA 1.2 will have a user guide and supporting documentation when it is released.** **FPA-PM will likely be run annually for out year budget submission, so data updates could occur annually.** **Follow your agency guidance for annual submissions.** |
| 26. | Historic Analysis | | How is the team addressing poor fire occurrence data by state administered land? **It will be the responsibility of the participants in the FPU to ensure the data is adequate for analysis, regardless of who the local administrative units are.** How many years are we going back 10 or 20 years? **The bigger the dataset the better.** If we are capturing militia effort, we have a disconnect with baseline fire occurrence data with the state resources or outside initial attack resources (i.e., severity)? **We are not sure of the questions intent, if this is referring to fire resources that will be analyzed to construct the most effective mix of resources per point found along the frontier, we are not using just fire resources found in each agencies historical organizations.** Are wind speed data going to be artificially constrained by predicted fire size? **Wind speeds will come from the historic distribution and a draw will be made for the selection of a wind speed that will be used for the fire behavior calculation.** How is it going to be calibrated? **Both calibration and validation are being considered to ensure analysis integrity. The exact process has not been determined yet.** |

| 27. | Historic Analysis | | When do we go to 40 fire behavior fuel models? **The 40 surface fuel models will become available when formally published.** When fires are randomly drawn from the distribution for use in PCHA, what fire characteristics are drawn with it? **To clarify: PCHA uses the full dataset, the output from PCHA is the fire scenario. The fire scenario is one of the inputs. Many of the fire behavior input values, slope, wind speed, fuel moistures, are randomly drawn from their distribution. Each fire event will have one "bin" of fire behavior output data (ROS, intensity, final fire size)** |
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| 28. | Historic Analysis | Core | Most of our Wx stations are not sited properly for Accurate 20' winds. They will therefore under-predict for all fuel models. **We would suggest that you correct this deficiency with weather station location or maintenance. To use or not use this data must be a local FPU decision. Please keep in mind this is a strategic model, how representative is the weather observation from a NFDRS station for the fire that is probable miles away from the station.** |